Notes from conversation with R8 personnel

August 17, 2015 11:00 am R8 managers

Laura Williams; David Ostrander, Prog Director Preparedness, Assessment & Emergency Response

Shahid reiterated our charge and emphasized that we are not focusing on post release.

Laura departed

Dave stated the Polrep from 2014 describes why they chose to fortify last year and return in 2015.

Sunnyside owned by Kinross. Signed a CD with Colo. to plug the portal, EPA objected to plugging the tunnel (to be Confirmed by the Record). Todd Hennis got ownership of various parcels including the parcel where the Sunnyside WWTP. One winter when it froze up Todd demolished the WWTP and subsequently plugged the American Tunnel which is where several mines, including the Gold King and the Red & Bonita, drain to so they were filling. EPA had been working with DMS on plugging up mines and test the anoxic conditions to stop the production of AMD.

Gold king drains into the American Tunnel

Animas Stakeholder Group has been studying the watershed including the acquisition of mine drawings, sample data, etc. to determine if you can prioritize the mine sites. Gold King was selected as a good mine to test plugging. EPA cleaned out the R&B approx. 700 feet to construct bulkhead (may have been the extent of the workings).

EPA and the state has been involved with the community and they wanted to continue to work with ASRG. There has not been a listing. Steve was trying to build trust with community by doing work at the orphan site (R&B). Concurrently remedial program has been trying to do work.

Mogul Mine is also owned by Todd Hennis, which is upgradient.

Todd & Kinross are in a dispute who owns what water. Kinross sends out letters to the community offering cleanup money if EPA does not list site on NPL.

Dave thinks that there is very little risk of a release (confirm with Steve) from the R&B because it's stable and they've been about 700' into it and the workings didn't extend much further.

Flow rates were 100 gpm which is not an extraordinary flow rate given the period of record. The ktr was trying to uncover the top of the portal and was not disturbing the soil at the bottom. They were then going to insert a pipe that was nestled against the top of the tunnel to drain off of the water. The plan was to pipe all of the water to the treatment ponds that were constructed under Steve's direction.

All the reports and the pix are on the epaosc website.

DRMS fact sheet on the need to insert the stinger into the mine.

Steve Ways 12:45 pm

Steve Ways, the on-site OSC, Hays was filling in while he was on a/l. Hays ran a mine in CA for 8 years, he's been working for EPA 22 yrs. Steve has been an OSC for 20+ yrs, he's worked for NEISC (sp?). Extensive experience in Env. Cleanup.

EPA was on site to stabilize the site.

Bruce Stover, Al Sorenson, geologist. Both extensive experience with DRMS.

Steve's story:

Got involved as requested by Site Assessment program to determine in appox 2009. Annual discharges from the 4 adits 300 Mill gals/yr. Rmvl program was asked to control the sources at the site. It was apparent that the overland flows in transporting particulate/leachate. 4 primary draining adits: American Tunnel (formerly the drain tunnel treated at a rate of 1700-2000 gpm); Gold King , Red & Bonita (500 below Gold King), Mogul Mine (north end of caldera). AT 600 gpm, GK 250-70 gpm, R&B 300 gpm, Mogul. Several plugs were installed by the mine owner under agreement with State of CO In 1995.

Treat the water in perpetuity or bulk head the portals. Al Sorenson was in the regulatory program and oversaw the construction of the bulkheads and is well-informed on the district. H&E allowed the monitoring to cease in the watershed about the time that the plugs were inserted. In 2008 or 2009 CO used bond forfeiture to stabilize the mine dump and installed (see fact sheet) a pipe at the GK. Synoptic sampling event in 2010 and modeling by USGS. R&B was identified as a major Zn loader, about 18% of the station A-72 (Animas River below Silverton) – below the confluence of Cement Cr, Mineral Cr and upper Animas R. The impetus behind looking at the R&B is to continue to look at source control and it's not hydraulically connected to the GK, Sunnyside, AT. Investigation performed in 201x on the R&B and plugged. Drilled a hole and hit adit after observing water flowing over the plug. The rig pad was at the only location possible and struck the adit. There was no pressure behind the plug. Knowing that they planned to take the water level down because they could see water flowing over the top of the plug. Worked closely with DRMS and did borings on each side of portal and did not hit water. Therefore in 2013, rock was determined to be competent and would perform the Packer Test in 2014. "Performed testing and investigation well beyond anything that is required by EPA." Communicated closely with ARSG but they never came up to the site. In his opinion, plugging the AT without understanding the GK is a huge mistake (see report from Al Sorenson). R&B began to have adit flows increased from 5 gpm to 300 shortly after the last plug was installed and GK flow rate from 0 to 250 gpm. Steve stated that it would be foolish for EPA to not stabilize the GK prior to plugging the R&B given the increase in flows from it after the AT plugging. Looking at GK, flows indicated that water was being conveyed at an elevation below the 2 CMPs that were installed in the adit. The CMPs was nearly at the top of the adit based on the uncovering of the timber cap (top rail) by DMRS.

Contracting efficiency

Had contractor lined up to perform the work at the R&B and it made sense to address the GK at the same construction effort. Planned to convey the flows from the GK at the treatment ponds at the R&B. Multiple conversations with ktrs, DMRS, ARSG, etc. No one ever raised the spectacle that there was significant pressure building in the mine. When the rock brow was exposed water starting seeping out. As of 8/14, the plan was to have Bur of Rec as an independent engineering perspective to come to get agreement on the plan.

Q for Al Sorenson – 2000 gpm flows at another site. Drilled a few borings and they failed to hit water.

Lessons Learned

- GK was not considered to be necessary. Creating a safe, accessible drilling access and pad would have been a significant project. Hays had a project that went wrong in a similar rock type in CA.
- Consistent flow rate would result if there was pressure built up.
- Specialty services/expertise that could be critical role players (gotechnical, hydrogeologist, mining specialist).

Good Reasons (clues that it was not pressurized) why the decision to proceed (supplement as result of the discussions with Al & Bruce).

- Flow rate was consistent with 2014 flows. Flows were variable based on July & Sept 2005, Oct 2006, and ave 2010, 2011 flows (sequentially in gpm 42, 135, 314, 206, 140)
- Open up the prow but not the full portal
- As and OSC had the expertise and the personnel with the expertise and knowledge to perform the given task.
- Visual observations that there was nothing unusual
- Review of mine maps by DRMS did not indicated that the material around the portal.

Notification:

- NRC was notified by DRMS
- Sheriff was also notified by DRMS

Hays
Steve's idea to bring Hays and the DRMS. Approached the adit as if it's always full, you always approach an adit as if it's full of water.

- Day 1, cleared all materials away to the plug. There was no water. Not taking that to mean that it was not full. Historical info indicated that there would be 4-5' of water behind plug.
- Day 2 elected to not proceed until Bruce came the next day
- Day 3 Went into a safe distance above the plug. Excavator operator constructed a pad but adjacent to the plug. Excavator removed material until hit bed rock. Lower end of rock face crumbled away and a little spurt of clear water. It appeared to be running down the rock. Upon a closer inspection, Hays saw water shooting up 1.5', then water began running red. Speculates that scraping some of the rock may have caused some other failure within the mine. They were above the blockage and at what was a safe distance based on multiple lines of information. The water removed the rock and the water just blew water out. 5-6 mins from when he observed the Entire duration took about an hour. Present along with Hays at the site were: Bruce Stovern, Al Sorenson, equipment operators. Bruce and Alan went to look at another mine during the excavation activities.

Recommendations for assessing situations such as this:

- Drilling into the adit to check the water level. He's done it before at competent rock and also where they aren't. He's convinced that if you drilled this site it would have caused the failure because it's not competent rock (look at the waste rock to understand how loose and friable the rock is). The danger is that when the roof of the adit fails it fails up and could have resulted in the equipment and personnel also falling into the adit.
- One

Dave Christiansen (union rep) joined us at the Rec Center at 4:30 pm.

Remaining questions

- He was puzzled by the red water flowing out.

Call adjourned at 4:44 pm